MAXDATA Server PLATINUM 1500 IR M6

User's Manual

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1 Setting up the System

Server Position

Please take note of the following criteria for creating a practical and safe workplace when setting up your computer:

⚠ The system can be used anywhere the temperature is suitable for people. However, rooms with humidity over 70%, and dusty or dirty areas are not appropriate. In addition, do not expose the server to any temperatures over +30 °C or under +10 °C.

⚠ Make sure that the cables connecting the server to peripheral devices are not tight.

⚠ Make sure that all power and connection cables are positioned so that they are not trip hazards.

⚠ When you save data to your server's hard disks or to a floppy disk, they are stored as magnetic information on the media. Make sure that they are not damaged by magnetic or electromagnetic fields.

⚠ Because the electronics in your computer can be damaged by jarring, no mechanical devices should be placed on the same surface as the server. This is especially important for impact printers whose vibrations could damage the hard disk.

⚠ Please take care to ensure a free air flow to the server at all times. Do not block the ventilation slots of the server case and particularly the power supplies. An insufficient air flow may damage the server and / or it's components.

⚠ ATTENTION

In order to fully separate the server from current, the power cord must be removed from the wall outlet.

Connecting the System

Rear of Server System

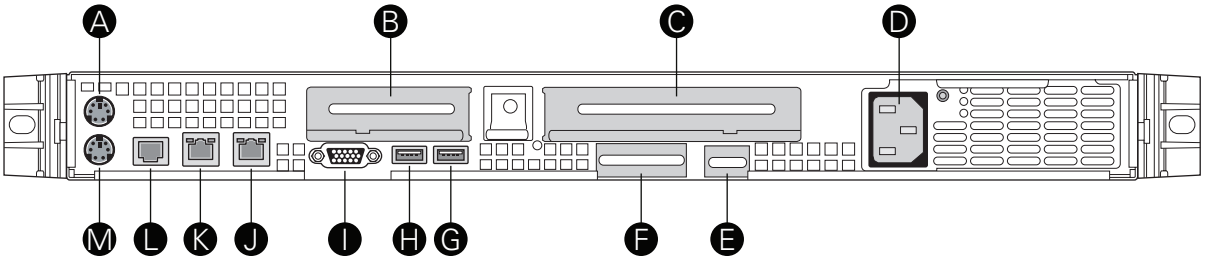

Figure 1. Server System Back

A. PS2 mouse connector
B. PCI card bracket (low profile)
C. PCI card bracket (full height)
D. AC Power Receptacle
E. Management Network Interface (optional)
F. IO module external connector (optional)
G. USB 1 connector
H. USB 2 connector
I. Video connector
J. NIC 1 connector
K. NIC 2 connector
L. RJ45 serial B port
M. PS2 keyboard connector

Table 1. NIC LEDs

LED Color	LED State	Description
Left LED	Off	No network connection
	Solid Amber	Network connection in place
	Blinking Amber	Transmit/receive activity
Right LED	Off	10 Mbps connection (if left LED is on or blinking)
	Solid Amber	100 Mbps connection
	Solid Green	1000 Mbps connection

Standard Control Panel

The diagram below shows the features available on the Standard Control Panel. The Standard Control Panel is one of two required control options that can be selected. The other option is the Local Control Panel.

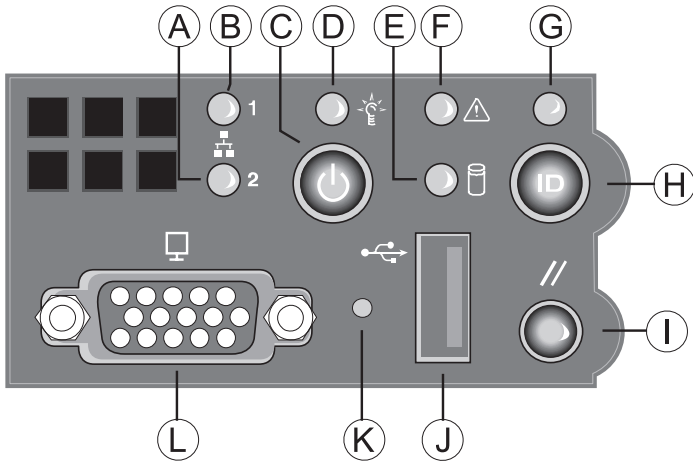

Figure 2. Standard Control Panel

Table 2. Standard Control Panel Features

Callout	Feature	Function
A.	NIC 2 activity LED	Continuous green light indicates a link between the system and the network to which it is connected. Blinking green light indicates network activity.
B.	NIC 1 activity LED	
C.	Power/Sleep button	Toggles the system power on/off. Sleep button for ACPI compatible operating systems.
D.	Power/Sleep LED	Continuous green light indicates the system has power applied to it. Blinking green indicates the system is in S1 sleep state. No light indicates the power is off / is in ACPI S4 or S5 state.
E.	Hard disk drive activity LED	Random blinking green light indicates hard disk drive activity (SCSI or SATA). No light indicates no hard disk drive activity.
F.	System Fault LED	Solid green indicates normal operation Blinking green indicates degraded performance Solid amber indicates a critical or non-recoverable condition Blinking amber indicates a non-critical condition No light indicates POST is running or the system is off.
G.	System Identification LED	Solid blue indicates system identification is active No light indicates system identification is not activated
H.	System Identification button	Toggles the front panel ID LED and the baseboard ID LED on and off. The baseboard LED is visible from the rear of the chassis and allows you to locate the server from the rear of a rack of systems.
I.	Reset button	Reboots and initializes the system.
J.	USB 2.0 port	Allows you to attach a USB component to the front of the chassis.
K.	NMI button	Puts the server in a halt-state for diagnostic purposes.
L.	Video port	Allows you to attach a video monitor to the front of the chassis. The front and rear video ports cannot be used at the same time.

Local Control Panel

The diagram below shows the features available on the Local Control Panel. The Local Control Panel is one of two required control options that can be selected.

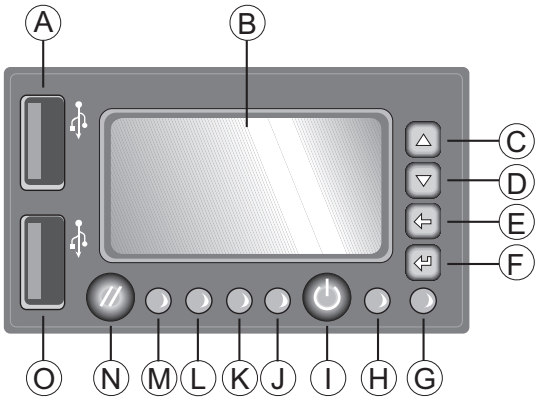

Figure 3. Local Control Panel

Table 3. Local Control Panel Features

Callout	Feature	Function
A.	USB 2.0 port	Allows you to attach a USB component to the front of the chassis.
B.	LCD display	Screen on which system information is displayed.
C.	Menu control button, scroll up	Scroll up one option at a time.
D.	Menu control button, scroll down	Scroll down one option at a time.
E.	Menu control button, scroll left	Move to the previous option.
F.	Menu control button, scroll right	Move to the previous page.
G.	System Identification LED	Solid blue indicates system identification is active. No light indicates system identification is not activated.
H.	Power/Sleep LED	Continuous green light indicates the system has power applied to it. Blinking green indicates the system is in S1 sleep state. No light indicates the power is off / is in ACPI S4 or S5 state.
I.	Power/Sleep button	Toggles the system power on/off. Sleep button for ACPI compatible operating systems.
J.	System Status LED	Solid green indicates normal operation. Blinking green indicates degraded performance. Solid amber indicates a critical or non-recoverable condition. Blinking amber indicates a non-critical condition. No light indicates POST is running or the system is off.
L. **K.**	NIC 1 activity LED NIC 2 activity LED	Continuous green light indicates a link between the system and the network to which it is connected. Blinking green light indicates network activity.
M.	Hard disk drive status LED	Random blinking green light indicates hard disk drive activity. No light indicates no hard disk drive activity is taking place
N.	Reset button	Reboots and initializes the system.
O.	USB 2.0 port	Allows you to attach a USB component to the front of the chassis.

2 Server System Features

This chapter briefly describes the main features of the MAXDATA PLATINUM Server System. It provides a list of the server system features and diagrams showing the location of important components and connections on the server system.

Table 4 summarizes the major features of the server system.

Table 4. Server System Features

Feature	Description
Dimensions	• 43.25 mm high • 430 mm wide • 692 mm deep • 14.1 kg - max chassis weight
Server Board	Intel® Server Board S5000PAL
Processor	Support for up to two Dual-Core Intel® Xeon® processors 5000 sequence
Memory	• Eight DIMM slots supporting stacked DDR2 533/667 MHz FBDIMM memory • Support for up to 32 GB DDR2 533/667 MHz FBDIMM memory
Chipset	Intel® 5000P chipset, consisting of: • Intel® 5000P Memory Controller Hub (MCH) • Intel® 6321ESB I/O Controller Hub
Peripheral Interfaces	External connections: • Stacked PS/2 ports for keyboard and mouse • RJ45 Serial B port • Two RJ45 NIC connectors for 10/100/1000 Mb connections • Two USB 2.0 ports Internal connections: • One USB port header, which supports two USB 2.0 ports • One DH10 Serial A header • Six Serial ATA 150 connectors with integrated RAID 0/1 support • One ATA-100 44-pin connector for optical drive support • SSI-compliant 24-pin control panel header • SSI-compliant 24-pin main power connector, supporting the ATX-12V standard on the first 20 pins
I/O Controll	National Semiconductor PC87427 controller
Video	On-board ATI ES1000 video controller with 16 MB DDR SDRAM
LAN	Intel® 82563EB dual port controller for 10/100/1000 Mbit/sec Ethernet LAN connectivity
Expansion Capabilities	• One low profile riser slot supporting 1U PCI Express riser cards • One full height riser slot supporting 1U PCI-X and PCI Express riser cards
Hard Drives	• Three hot-swap SATA/SAS drives
Peripherals	• Slimline bay for IDE optical drive • PCI riser card bracket
Power Supply	Single 600 W power supply module
Fans	• Five non-hotswap system fans • Two non-redundant fans in power supply
USB	• Two front panel USB ports • One internal USB header providing two USB ports
System Management	IPMI 2.0 compliant platform instrumentation Light Guided Diagnostics

Connector and Header Locations

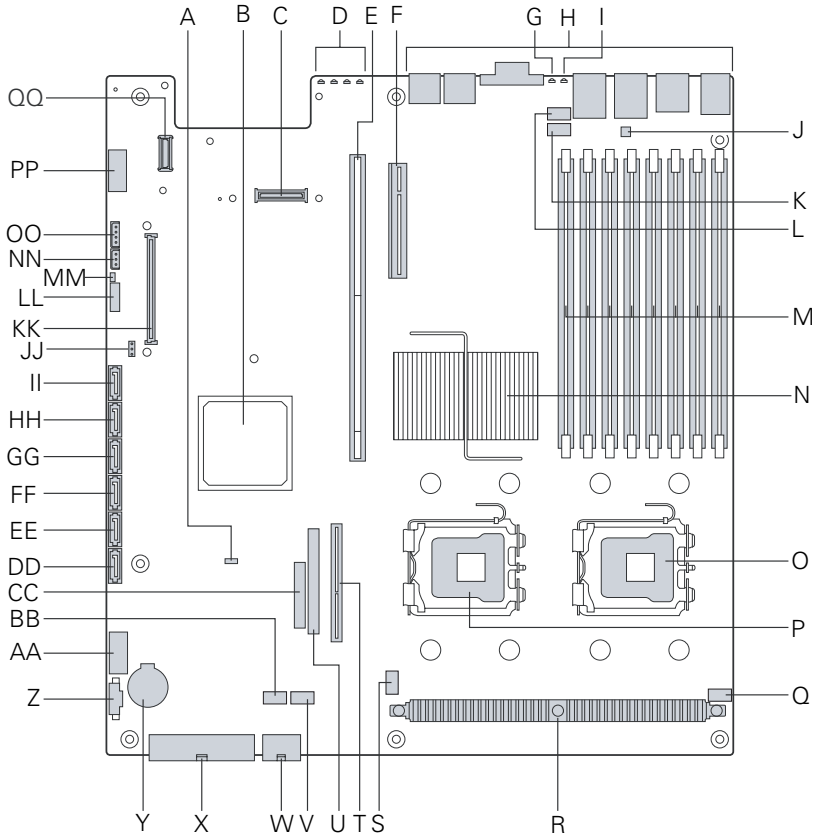

Figure 4. Server Board Connector and Component Locations

A.	BIOS Bank Select Jumper	**P.**	Processor 2 Socket	**DD.**	SATA Port 0
B.	Intel® 6321ESB IO Controller Hub	**Q.**	Processor Fan 1 Header	**EE.**	SATA Port 1
C.	I/O Expansion Module Connector	**R.**	Voltage Regulator Heat Sink	**FF.**	SATA Port 2
D.	POST Code Diagnostic LEDs	**S.**	Processor Fan 2 Header	**GG.**	SATA Port 3
E.	Intel® Adaptive Slot - Full Height	**T.**	Bridge Board Connector	**HH.**	SATA Port 4
F.	PCI Express Riser Slot - Low Profile	**U.**	ATA-100 Optical Drive Connector (Power + IO)	**II.**	SATA Port 5
G.	System Identification LED - Blue	**V.**	System Fan 2 Header	**JJ.**	SATA SW RAID 5 Activation Key Connector
H.	Back Panel I/O Ports	**W.**	CPU Power Connector	**KK.**	Remote Management Module (RMM) Connector
I.	Status LED - Green/Amber	**X.**	Main Power Connector	**LL.**	System Recovery Jumpers
J.	Serial B Configuration Jumper	**Y.**	Battery	**MM.**	Chassis Intrusion Switch Header
K.	System Fan 4 Header	**Z.**	Power Supply Management Connector	**NN.**	3-pin IPMB Header
L.	System Fan 3 Header	**AA.**	Dual Port USB 2.0 Header	**OO.**	Local Control Panel Header
M.	DIMM Sockets	**BB.**	System Fan 1 Header	**PP.**	Serial A Header
N.	Intel® 5000P MCH	**CC.**	24-pin SSI Control Panel Connector	**QQ.**	RMM NIC Connector
O.	Processor 1 Socket				

Configuration Jumpers

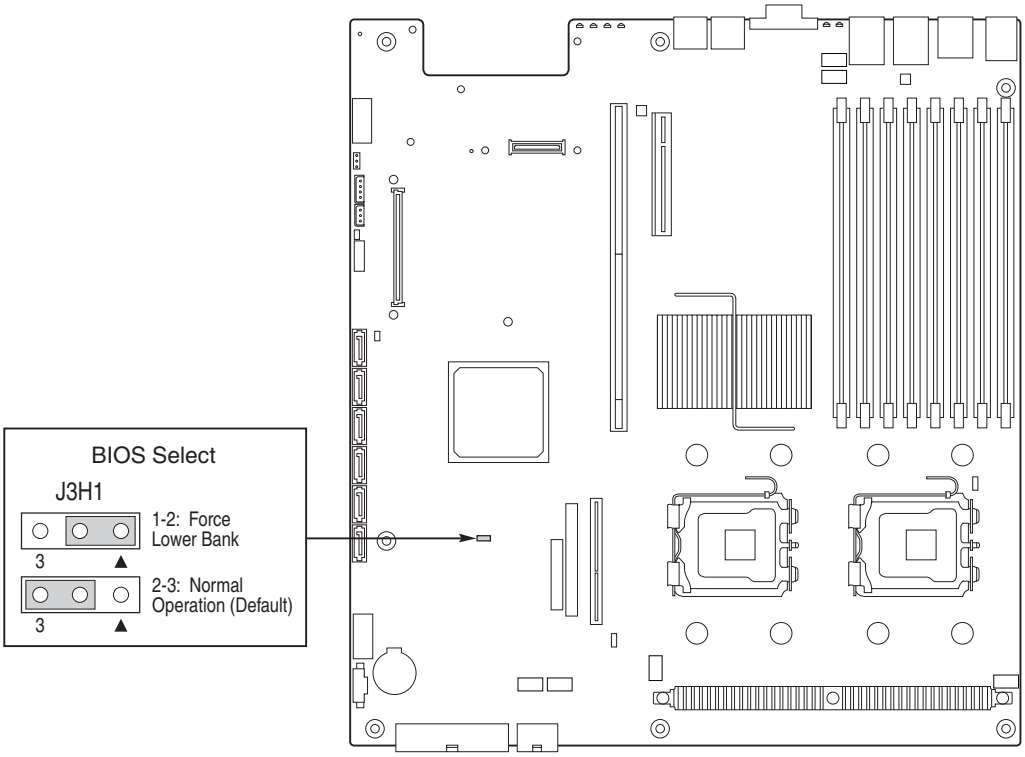

Figure 5. BIOS Select Jumper

Jumper Name	Jumper Purpose
BIOS Select	If pins 1-2 are jumpered, the BIOS in the lower bank will be selected on the next reset. These pins should be jumpered on 2-3 for normal operation.

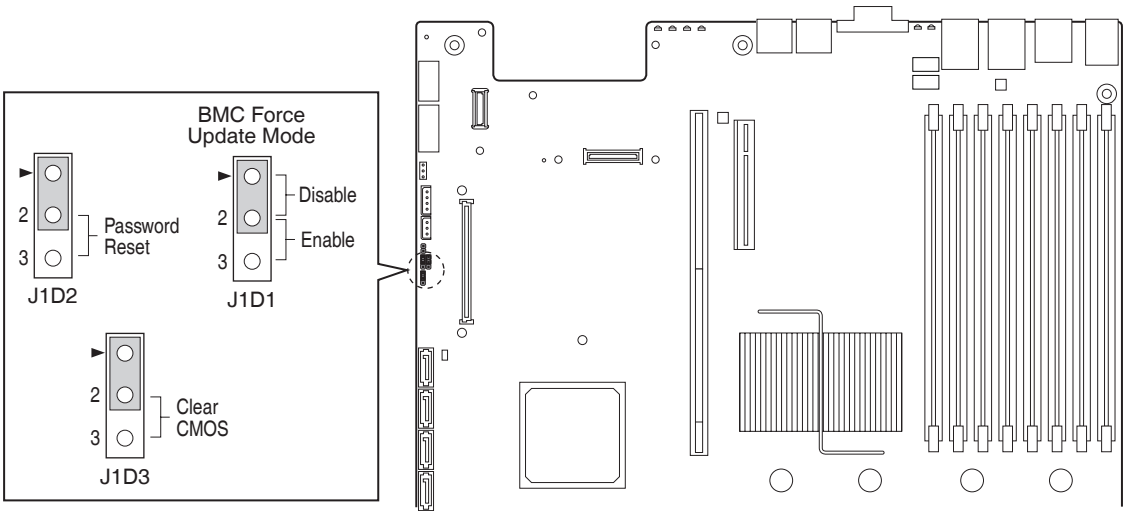

Figure 6. Recovery Jumpers

Jumper Name	Jumper Purpose
CMOS Clear	If pins 2-3 are jumpered, the CMOS settings will be cleared on the next reset. These pins should be jumpered on 1-2 for normal operation.
Password Clear	If pins 2-3 are jumpered, administrator and user passwords will be cleared on the next reset. These pins should be jumpered on 1-2 for normal operation.
BMC Force Update Mode	If pins 2-3 are jumpered, BMC Force Update Mode is enabled. These pins should be jumpered on 1-2 for normal operation.

Light Guided Diagnostics

The server board contains diagnostic LEDs to help you identify failed and failing components, and to help you identify the server from among several servers. Except for the ID LED, the status LED, and the 5V standby LED, the LEDs turn on (amber) only if a failure occurs.

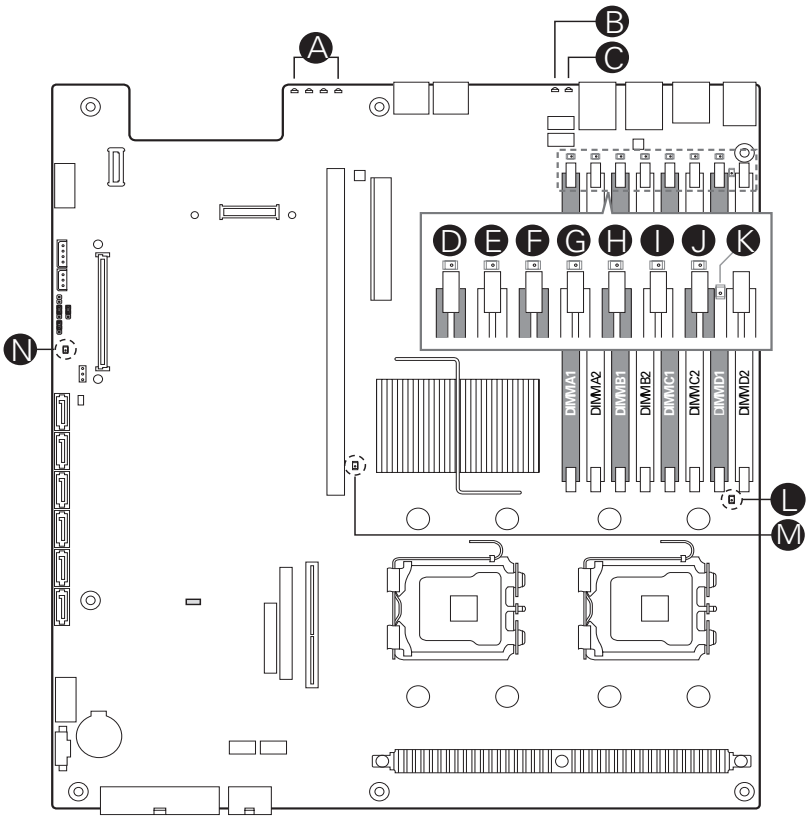

Figure 7. Light Guided Diagnostic LEDs

A. POST Code LEDs
B. ID LED
C. Status LED
D. DIMM A1 Fault
E. DIMM A2 Fault
F. DIMM B1 Fault
G. DIMM B2 Fault
H. DIMM C1 Fault
I. DIMM C2 Fault
J. DIMM D1 Fault
K. DIMM D2 Fault
L. CPU 1 Fault
M. CPU 2 Fault
N. 5V Standby

RAID Support

The server system provides an embedded SATA controller that supports both 1.5 and 3.0 Gbps data transfer rates.

The BIOS Setup utility provides multiple drive configuration options on the Advanced | ATA Controller setup page, some of which affect the ability to configure RAID. The "Onboard SATA Controller" option is enabled by default. When this option is enabled, the "SATA Mode" option can be set to either Legacy or Enhanced. The Legacy and Enhanced modes affect the RAID configuration as follows:

- Legacy supports four disk drives and does not provide RAID support.
- Enhanced supports six disk drives and is required for RAID configurations.

When the enhanced mode is selected, you can choose to enable or disable "AHCI Mode" or "Configure SATA as RAID". Intel® Embedded Server RAID Technology II is enabled by the option, "Configure SATA as RAID." The Intel® Embedded Server RAID Technology II feature provides RAID modes 0, 1, and 10.

For RAID 0, 1, and 10, enclosure management is provided through the SATA_SGPIO connector on the server board when a cable is attached between this connector on the server board and to the backplane or I^2C interface.

Hardware Requirements

Processor

One or two Dual-Core Intel® Xeon® 5000 sequence processors must be installed.

Memory

The server board provides eight DIMM sockets across two branches, and each branch has two channels. The DIMM configuration is shown in the following figure.

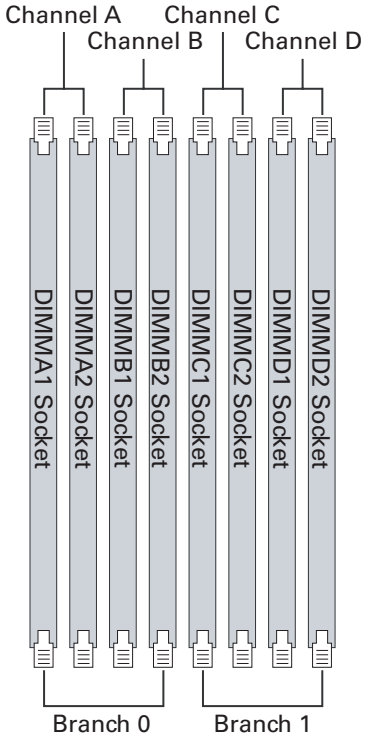

Figure 8. DIMM Configuration Diagram

DIMMs must be populated in pairs across consecutive channels starting with the lowest numbered slot in each channel. Slots A1 and B1 are paired, followed by slots C1 and D1. For performance reasons, when configuring four DIMMs, DIMM pairs A2 and B2 should never be populated before DIMM pair C1 and D1. A four DIMM configuration should be populated as A1 and B1; C1 and D1.

In non-mirrored mode, all DIMMs with the same slot number within a given branch must match (size, technology, manufacturer). It is not required to match DIMMs between different slot numbers.

DIMMs must meet the following requirements:

- Use only Fully Buffered DIMMs (FBD) with DDR2 DRAM technology.
- Use only FBD DDR2-533 and FBD DDR2-667 stacked DIMM modules.

In determining your memory requirements, the need for memory sparing or memory mirroring must be considered.

Memory Sparing and Mirroring

The chipset includes hardware that supports memory mirroring and memory on-line sparing. Both memory mirroring and memory on-line sparing provide a way to prevent data loss in case a DIMM fails.

In a mirrored system, the maximum usable memory is one-half of the installed memory, with a minimum of four DIMMs installed. Since the data is duplicated across DIMMs, it means that up to one-half of the installed DIMMs are actively in use at any one time. The remaining DIMMs are used for mirroring.

Memory mirroring and memory sparing are mutually exclusive. Only one can be active at a time.

Optional Hardware

Remote Management Module

The Remote Management Module is available to provide advanced server mangement features.

One 10/100 Mbps NIC mezzanine card is included for dedicated remote access.

3 Server Chassis Features

This chapter provides diagrams showing the location of important components and connections on the server chassis.

Component Identification

Internal Components

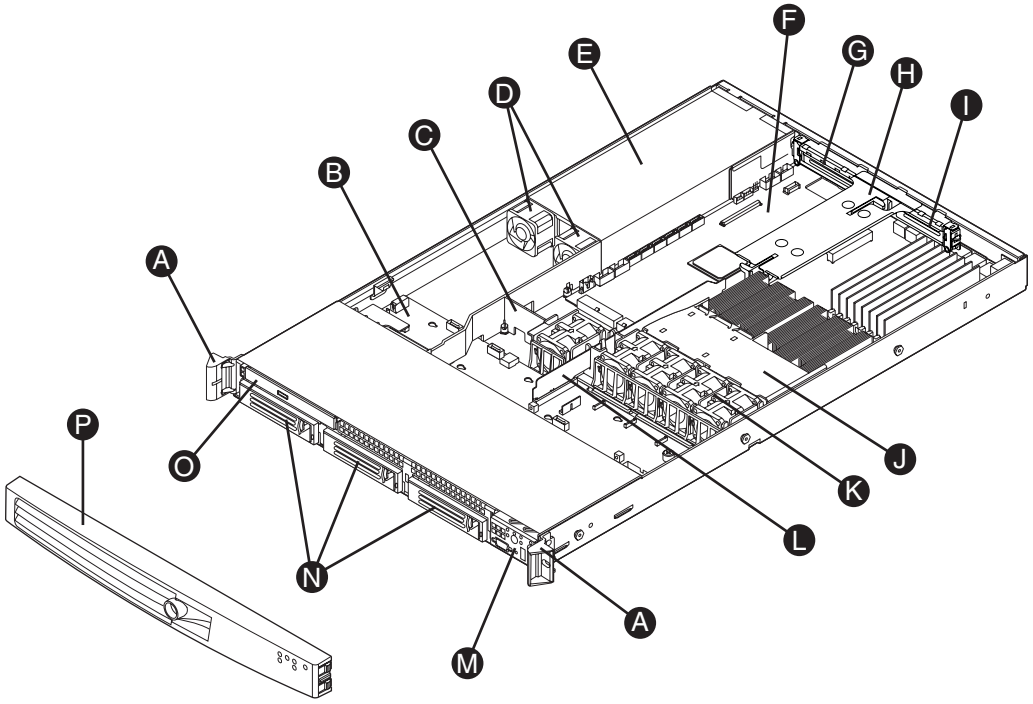

Figure 9. Chassis Components

A. Rack Handles
B. Backplane
C. Air baffle
D. Power supply fans
E. Power supply
F. Server board
G. PCI card bracket (full height)
H. PCI add-in riser assembly
I. PCI card bracket (low profile)
J. Processor air duct
K. Fan module
L. Bridge board
M. Control panel (standard control panel shown)
N. Hard drive bays
O. Slimline Optical Drive Bay
P. Front bezel (optional)

SAS/SATA Backplanes

The system can support either an active SAS or a passive SAS/SATA backplane. The backplanes provide the platform support for peripheral drives and hot-swap SAS or SATA hard drives. To eliminate several cables, the backplanes are also used as a pathway for signals from the server board to various platform interconnects, including those for the control panel and peripheral drives.

The passive backplane acts as a pass-through for the SAS/SATA data from the drives to the SATA controller on the server board or a SAS/SATA controller add-in card. It provides the physical requirements for the hot-swap capabilities. The active backplane has a built-in SAS controller that does not need communication with the baseboard controller or an add-in card.

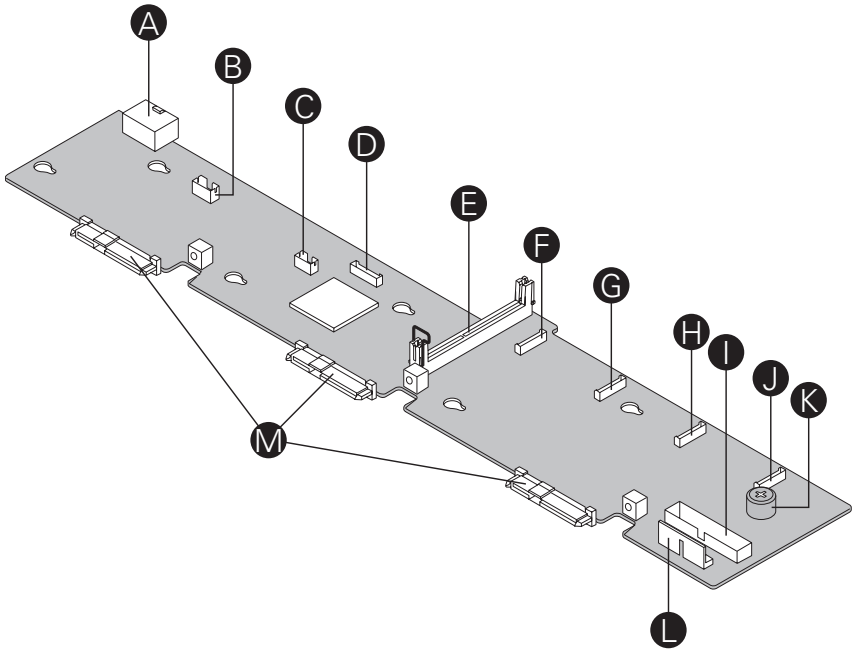

Figure 10. Active Backplane Components

A.	Backplane Power	**H.**	Fan 2 Power
B.	USB Floppy Connector	**I.**	Front Panel Connector
C.	SW RAID Activation Key	**J.**	Fan 1 Power
D.	Fan 5 Power	**K.**	Screw
E.	Bridge Board Connector	**L.**	Front Panel USB
F.	Fan 4 Power	**M.**	SAS/SATA Connectors
G.	Fan 3 Power		

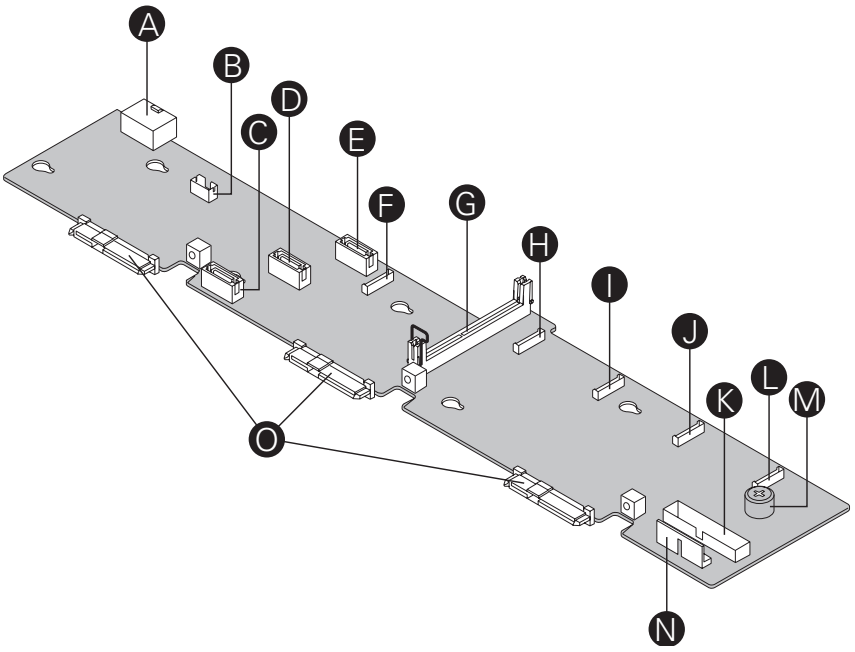

Figure 11. Passive Backplane Components

A. Backplane Power
B. USB Floppy Connector
C. SATA 0
D. SATA 1
E. SATA 2
F. Fan 5 Power
G. Bridge Board Connector
H. Fan 4 Power
I.. Fan 3 Power
J. Fan 2 Power
K. Front Panel Connector
L. Fan 1 Power
M. Screw
N. Front Panel USB
O. SAS/SATA Connectors

Peripheral Devices

The server system provides locations and hardware for installing hard drives, a CD-ROM drive, or a DVD-ROM drive. The following figure shows the available options.

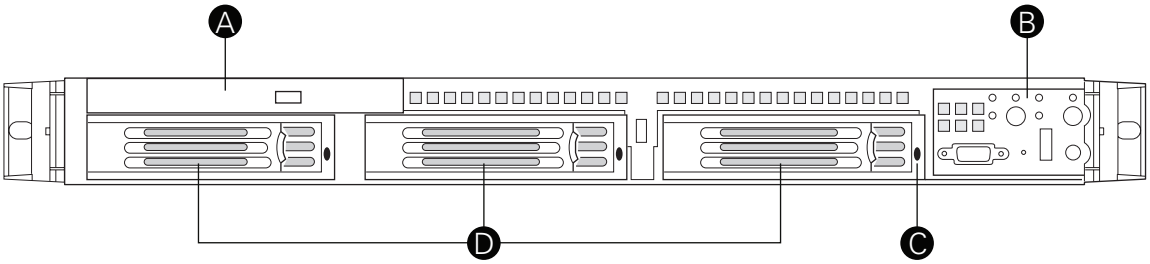

Figure 12. Optional Peripherals

A. Slimline drive bay
B. Control panel (standard control panel shown)
C. Hard Drive Status LEDs
D. Hard drive bays

4 Hardware Installations and Upgrades

Before You Begin

Before working with your server product, pay close attention to the safety instructions at the beginning of this manual.

Tools and Supplies Needed

- Phillips (cross head) screwdriver (#1 bit and #2 bit)
- Needle-nosed pliers
- Antistatic wrist strap and conductive foam pad (recommended)

System References

All references to left, right, front, top, and bottom assume the reader is facing the front of the chassis as it would be positioned for normal operation.

Removing and Installing the Chassis Cover

The MAXDATA PLATINUM 1500 IR Server Chassis must be operated with the top cover in place to ensure proper cooling. You will need to remove the top cover to add or replace components inside of the chassis. Before removing the top cover, power down the server and unplug all peripheral devices and the AC power cable.

NOTE

A nonskid surface or a stop behind the chassis may be needed to prevent the chassis from sliding on your work surface.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord.
4. Remove the shipping screw if it is installed. See letter "A" in the figure below.
5. While holding in the blue button at the top of the chassis in (see letter "B"), slide the top cover back until it stops (See letter "C").
6. Insert your finger in the notch (see letter "D") and lift the cover upward to remove it.

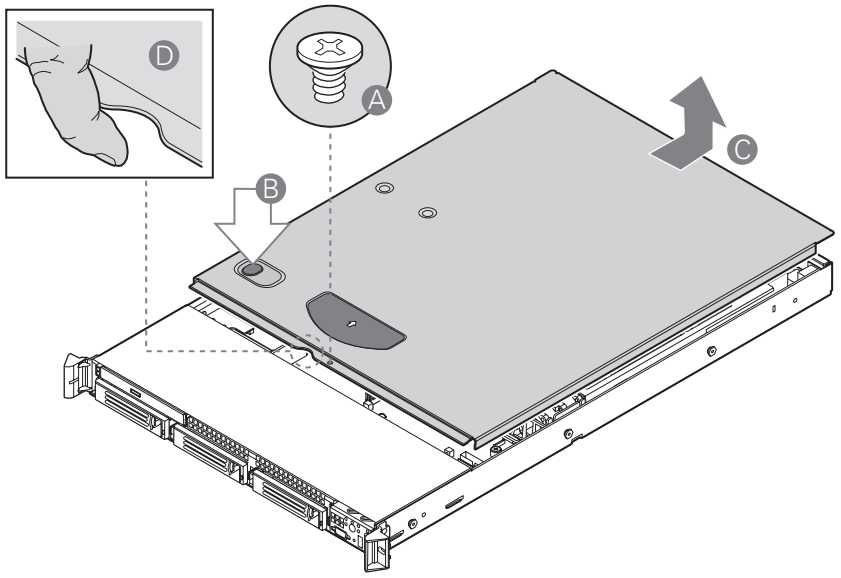

Figure 13. Removing the Server System Cover

Removing and Installing the Front Bezel

Two front bezel options are available. One is used for the Standard Control Panel and the other is used with the Local Control Panel. The installation steps are the same for both bezels. If you are installing a bezel on your chassis, make sure you position it with the control panel area at the top right.

Removing the Front Bezel

1. Unlock the bezel.
2. Pull the bezel out from the chassis.

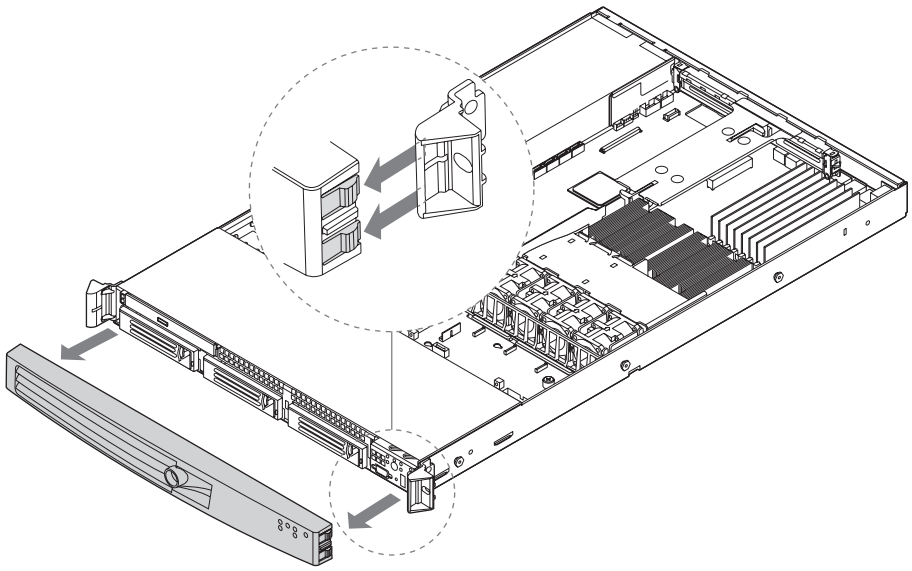

Figure 14. Removing the Front Bezel

Installing the Front Bezel

1. At each end of the bezel, line up the center notch on the bezel with the center guide on the rack handles.
2. Push the bezel onto the front of the chassis until it clicks into place.

Installing a SAS or SATA Hot-swap Hard Disk Drive

1. Remove the front bezel if it is installed.
2. Press in on the green latch at the front of the hard drive carrier. See letter "A" in the figure below.
3. Pull out on the black lever and slide the carrier from the chassis. See letter "B" in the figure below.

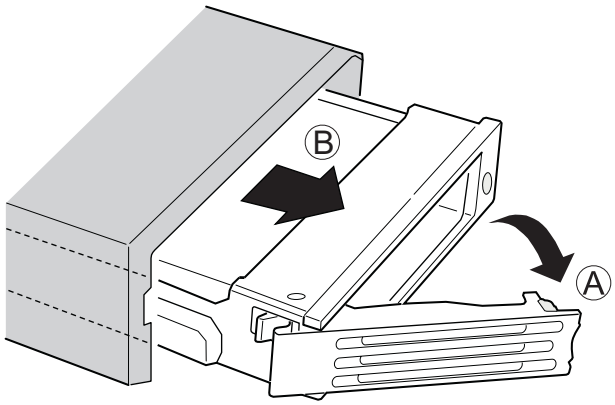

Figure 15. Removing the Hot-swap Hard Drive Carrier from the Chassis

4. Remove the four screws that attach the plastic retention device or the previously installed hard drive to the drive carrier. Two screws are at each side of the retention device or the hard drive. Store the plastic retention device for future use.

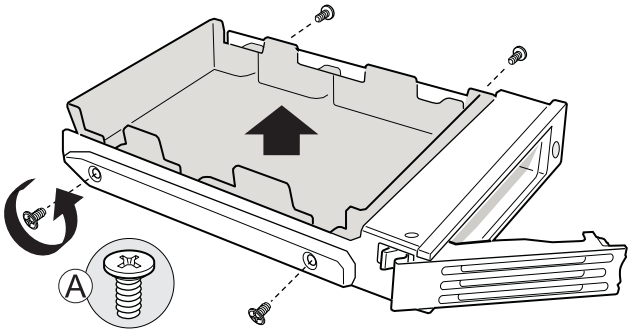

Figure 16. Removing the Retention Device from the Hot-swap Drive Carrier

5. Remove the hard drive from its wrapper and place it on an antistatic surface.
6. Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.
7. With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier.
8. Align the holes in the drive to the holes in the drive carrier and attach it to the carrier with the screws that were attached to the plastic retention device.

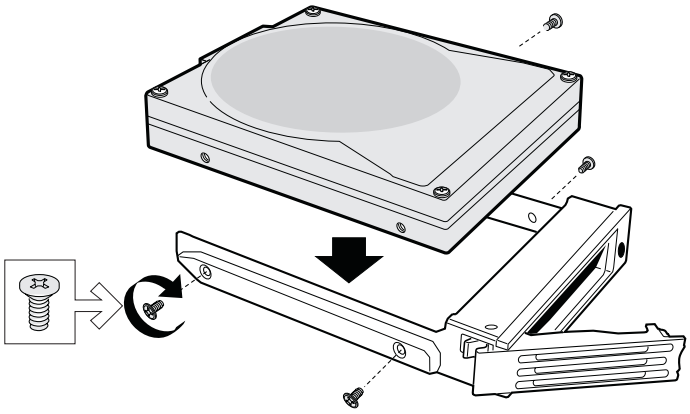

Figure 17. Attaching a Hot-swap Hard Disk Drive to a Drive Carrier

9. With the black lever in the fully open position, slide the drive assembly into the chassis. The green latch at the front of the drive carrier must be to the right. See letter "A" in the figure below. Do not push on the black drive carrier lever until the lever begins to close by itself.
10. When the black drive carrier lever begins to close by itself, push on it to lock the drive assembly into place.

Removing a Hot-swap Hard Disk Drive

1. Remove the front bezel if it is installed.
2. Press in on the green latch at the front of the hard drive carrier.
3. Pull out on the black lever to slide the carrier from the chassis.
4. Remove the four screws that attach the hard drive to the drive carrier. Lift the drive from the carrier. Store the drive in an anti-static bag.
5. If you are not installing a new drive, place the plastic retention device into the drive carrier, using the four screws you removed from the hard drive.
6. With the black lever in the fully open position, slide the drive carrier into the chassis. The green latch must be to the right. Do not push on the black lever until the lever begins to close by itself.

NOTE

For proper airflow, the hard drive carrier must be replaced in the chassis, even if no hard drive is installed in it.

7. When the black lever begins to close by itself, push on it to lock the drive carrier into place.

Removing and Installing the PCI Riser Assembly

Always operate your server chassis with the PCI riser assembly in place. The riser assembly is required for proper airflow within the chassis. You will need to remove the PCI riser assembly from the chassis to replace the PCI riser connectors, or to add or remove a PCI add-in card.

Removing the PCI Riser Assembly

Use the following instructions to remove the PCI riser assembly from the chassis.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Power down the server and unplug all peripheral devices and the AC power cable.
3. Remove the chassis cover.
4. Remove the processor air duct.
5. Disconnect any cables attached to any installed add-in cards.
6. Lift up on the two levers on the PCI riser assembly to lift the riser assembly from the chassis. See the figure below.

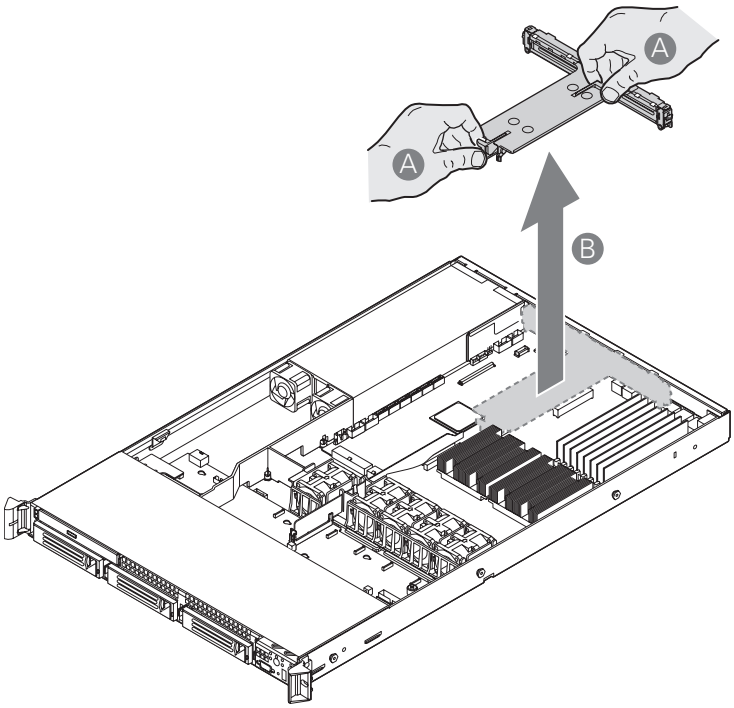

Figure 18. Removing PCI Riser Assembly from the Server System

Installing the PCI Riser Assembly

1. Observe the safety and ESD precautions at the beginning of this book.
2. Power down the server and unplug all peripheral devices and the AC power cable.
3. Remove the chassis cover.
4. Remove the processor air duct.
5. Install any necessary add-in cards into the PCI riser assembly.
6. Install any cables onto add in cards that require them. See your add-in card documentation for information and add-in card requirements.
7. Set the riser assembly straight down, matching the hooks in the back of the riser assembly to the notches in the rear of the chassis.
8. Press firmly to push the riser into the slots on the server board.
9. Install the processor air duct.
10. Install the chassis cover.

Installing a PCI Add-in Card

1. Observe the safety and ESD precautions at the beginning of this book.
2. Power down the server and unplug all peripheral devices and the AC power cable.
3. Remove the chassis cover.
4. Remove the processor air duct.
5. Remove the PCI riser assembly.
6. Open the rear retention clip by pushing the blue slide upward and rotating clip to the fully open position (see letter "A").
7. Remove the filler panel from the selected add-in card slot (see letter "B").
8. Insert add-in card until it seats in riser card connector (see letter "C").

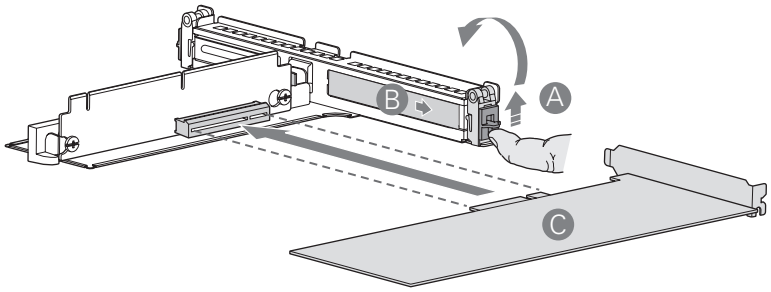

Figure 19. Installing a Full Height Add-In Card

9. Close the retention clip.

Note

Make sure that all empty add-in card slots have filler panels installed.

10. Install the PCI riser assembly into the server system.
11. Install the processor air duct.
12. Install the server system cover.
13. Plug all peripheral devices and the AC power cable(s) into the server.

Filling Empty Chassis Bays

A filler panel, drive blank, or empty drive carrier must be installed into any empty drive bay.

Installing Memory

The silkscreen on the board for the DIMMs displays DIMM A1, DIMM A2, DIMM B1, DIMM B2, DIMM C1, DIMM C2, DIMM D1 and DIMM D2 starting from the center of the board.

Installing DIMMs

To install DIMMs, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the chassis cover and locate the DIMM sockets.

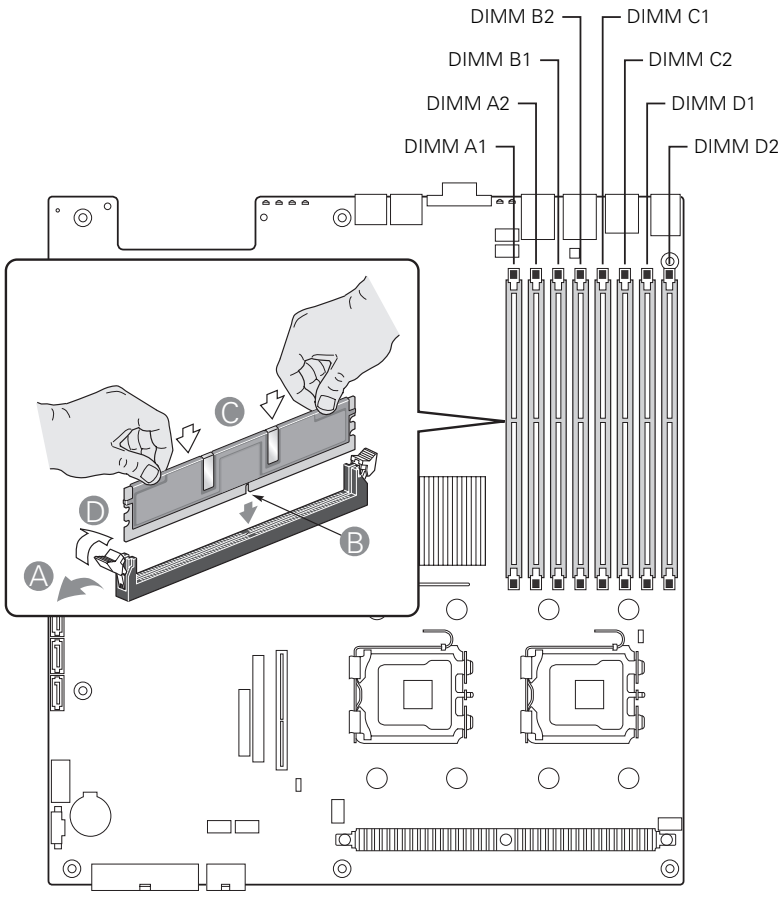

Figure 20. Installing Memory

5. Make sure the clips at either end of the DIMM socket(s) are pushed outward to the open position.
6. Holding the DIMM by the edges, remove it from its anti-static package.
7. Position the DIMM above the socket. Align the small notch in the bottom edge of the DIMM with the key in the socket.
8. Insert the bottom edge of the DIMM into the socket.
9. When the DIMM is inserted, carefully push straight down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place.
10. Replace the chassis cover and reconnect the AC power cord.

Installing or Replacing the Processor

CAUTIONS

Processor must be appropriate: You may damage the server board if you install a processor that is inappropriate for your server.

ESD and handling processors: Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following: (1) Touch the metal chassis before touching the processor or server board. Keep part of your body in contact with the metal chassis to dissipate the static charge while handling the processor. (2) Avoid moving around unnecessarily.

Installing the Processor

To install a processor, follow these instructions:

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the chassis cover.
5. Locate the processor socket and raise the socket handle completely (see Figure 21).

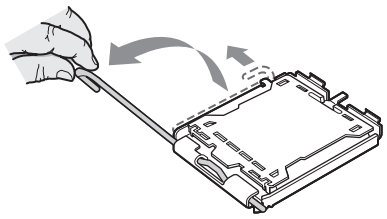

Figure 21. Lifting the Processor Socket Handle

6. Raise the CPU load plate (see Figure 22).

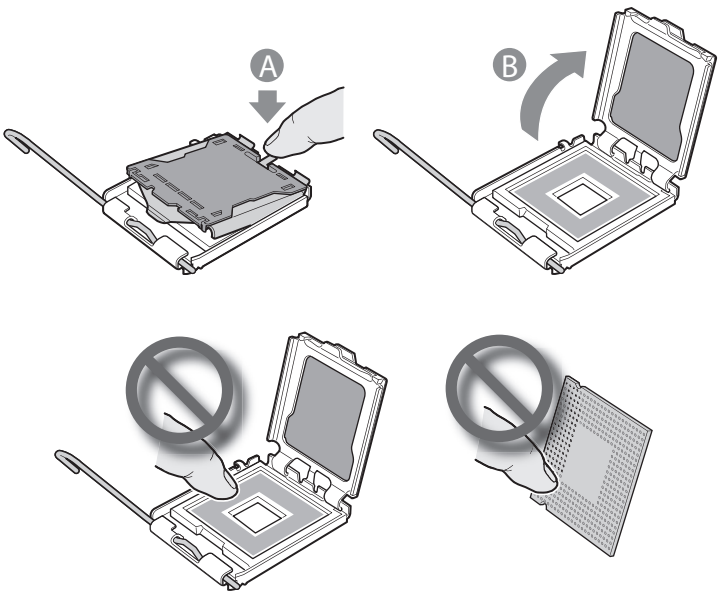

Figure 22. Installing the Processor

NOTE

Do not touch the socket pins; they are very sensitive and easily damaged.

7. Line up the alignment marks on the processor and the socket, and insert the processor into the socket.

NOTE

Make sure the alignment triangle mark and the alignment triangle cutout align correctly.

8. Remove the protective socket cover (see Figure 23).

NOTE

Retain the protective socket cover for use when removing a processor that will not be replaced.

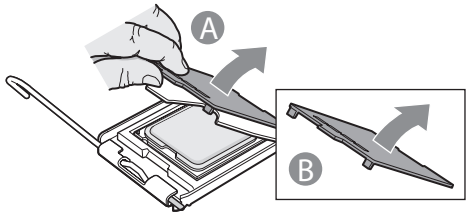

Figure 23. Removing the Socket Cover

9. Lower the CPU load plate and lower the socket lever completely.

Installing the Heat Sink(s)

1. The heat sink has Thermal Interface Material (TIM) located on the bottom of it. Use caution when you unpack the heat sink so you do not damage the TIM.
2. Set the heat sink over the processor, lining up the four captive screws with the four posts surrounding the processor.
3. Loosely screw in the captive screws on the heat sink corners in a diagonal manner. Do not fully tighten one screw before tightening another.
4. Gradually and equally tighten each captive screw until all screws are tight.

5. Reinstall and reconnect any parts you removed or disconnected to reach the processor sockets.
6. Replace the server's cover and reconnect the AC power cord.

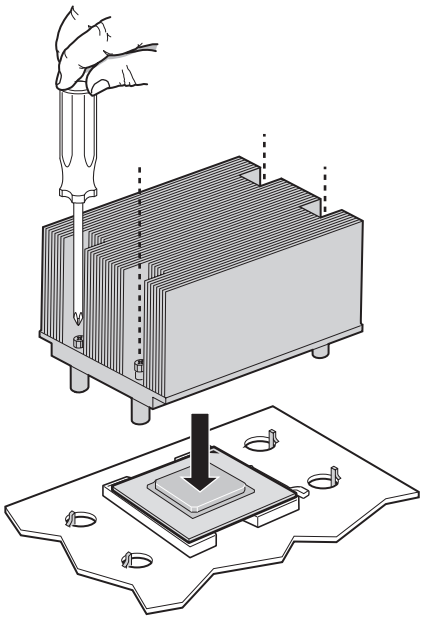

Figure 24. Installing Heat Sink (2U Heat Sink shown)

Removing a Processor

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Remove the AC power cord from the server.
4. Remove the chassis cover.
5. Loosen the four captive screws on the corners of the heat sink.
6. Twist the heat sink slightly to break the seal between the heat sink and the processor.
7. Lift the heat sink from the processor. If it does not pull up easily, twist the heat sink again. Do not force the heat sink from the processor. Doing so could damage the processor.
8. Lift the processor lever.
9. Raise te CPU load plate.
10. Remove the processor.
11. If installing a replacement processor, see "Installing the Processor." Otherwise, install the protective socket cover over the empty processor socket and reinstall the chassis cover.

RJ45 Serial Port Configuration

The RJ45 serial port connector can be configured to support either a DSR signal or a DCD signal. As the server board is shipped, it is configured to support DSR signals. To change the configuration to support DCD signals a jumper on the board must be changed. Use the following instructions to configure your server board to support DCD signals.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the server's cover.
5. Locate the jumper block for the serial port. See figure 25.
6. Move the jumper from the default position covering pins 3 and 4 to cover pins 1 and 2.

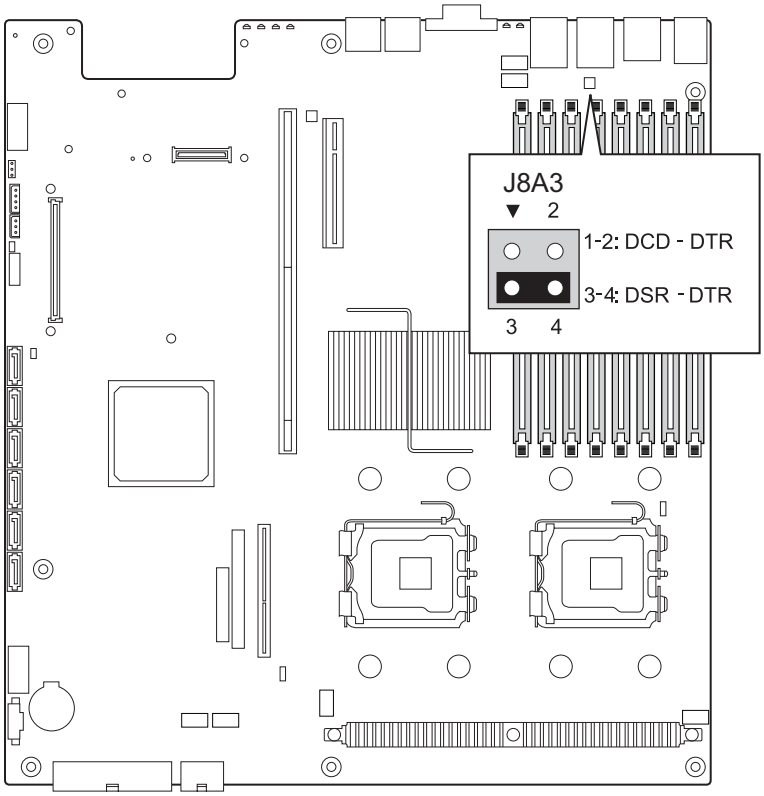

Figure 25. Changing the Serial Port Configuration

Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.

⚠ WARNING

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

⚠ WARNUNG

Wenn eine ungeeignete Batterie eingesetzt wird oder die Batterie falsch eingesetzt wird, besteht Explosionsgefahr. Ersetzen Sie verbrauchte Batterien nur durch Batterien gleichen oder äquivalenten Typs, der vom Hersteller empfohlen wurde. Entsorgen Sie die verbrauchte Batterie entsprechend den Anweisungen des Herstellers.

⚠ AVERTISSEMENT

Danger d'explosion en cas de remplacement incorrect de la pile. Remplacez-la uniquement par une pile du même type ou d'un type équivalent recommandé par le fabricant. Mettez au rebut les piles usagées en vous conformant aux instructions du fabricant.

⚠ OSTRZEŻENIE

Nieprawidłowa wymiana baterii grozi eksplozją. Wymieniać tylko na taki sam lub równoważny typ, zalecany przez producenta. Zużyte baterie utylizować zgodnie z instrukcjami producenta.

⚠ ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

⚠ ADVARSEL

Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

⚠ VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

⚠ VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

1. Observe the safety and ESD precautions.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord(s) from the server.
4. Remove the server's cover and locate the battery. See the documentation that accompanied your server chassis for instructions on removing the server's cover.
5. Insert the tip of a small flat bladed screwdriver, or an equivalent, under the tab in the plastic retainer. Gently push down on the screwdriver to lift the battery.
6. Remove the battery from its socket.

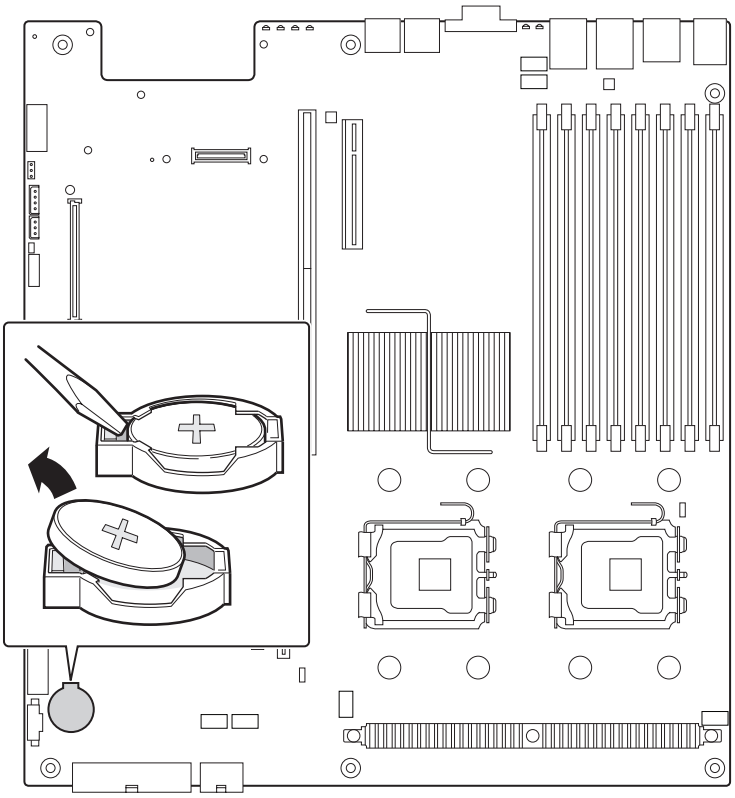

Figure 26. Replacing the Backup Battery

7. Dispose of the battery according to local ordinance.
8. Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket.
9. Close the chassis.
10. Run Setup to restore the configuration settings to the RTC.

5 Server Utilities

Using the BIOS Setup Utility

This section describes the BIOS Setup Utility options, which is used to change server configuration defaults.

Starting Setup

You can enter and start BIOS Setup under several conditions:

- When you turn on the server, after POST completes the memory test
- When you have moved the CMOS jumper on the server board to the "Clear CMOS" position (enabled)

In the two conditions listed above, during the Power On Self Test (POST), you will see this prompt:

Press <F2> to enter SETUP

In a third condition, when CMOS/NVRAM has been corrupted, you will see other prompts but not the <F2> prompt:

Warning: CMOS checksum invalid

Warning: CMOS time and date not set

In this condition, the BIOS will load default values for CMOS and attempt to boot.

If You Cannot Access Setup

If you are not able to access BIOS Setup, you might need to clear the CMOS memory. For instructions on clearing the CMOS, see "Clearing the CMOS".

Setup Menus

Each BIOS Setup menu page contains a number of features. Except for those features that are provided only to display automatically configured information, each feature is associated with a value field that contains user-selectable parameters. These parameters can be changed if the user has adequate security rights. If a value cannot be changed for any reason, the feature's value field is inaccessible.

Table 5 describes the keyboard commands you can use in the BIOS Setup menus.

Table 5. Keyboard Commands

Press	Description
<F1>	Help - Pressing F1 on any menu invokes the general Help window.
← →	The left and right arrow keys are used to move between the major menu pages. The keys have no affect if a submenu or pick list is displayed.
↑	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
↓	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
F5/-	Change Value - The minus key or the F5 function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
F6/+	Change Value - The plus key or the F6 function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<Enter>	Execute Command - The Enter key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the Enter key will undo the pick list, and allow another selection in the parent menu.
<Esc>	Exit - The ESC key provides a mechanism for backing out of any field. This key will undo the pressing of the Enter key. When the ESC key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the ESC key is pressed in any submenu, the parent menu is re-entered. When the ESC key is pressed in any major menu, the exit confirmation window is displayed and the user is asked whether changes can be discarded.
<F9>	Setup Defaults - Pressing F9 causes the following to appear: Setup Confirmation Load default configuration now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all Setup fields are set to their default values. If "No" is selected and the Enter key is pressed, or if the ESC key is pressed, the user is returned to where they were before F9 was pressed without affecting any existing field values.
<F10>	Save and Exit - Pressing F10 causes the following message to appear: Setup Confirmation Save Configuration changes and exit now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all changes are saved and Setup is exited. If "No" is selected and the Enter key is pressed, or the ESC key is pressed, the user is returned to where they were before F10 was pressed without affecting any existing values.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is shown in figure 6.

1. Power down the system and disconnect the AC power.
2. Open the server chassis.
3. Move the jumper from the normal operation position, Password Clear Protect, at pins 1 and 2 to the Password Clear Erase position, covering pins 2 and 3.
4. Reconnect the AC power, power up the system.
5. Power down the system and disconnect the AC power.
6. Return the Password Clear jumper to the Password Clear Protect position, covering pins 1 and 2.
7. Close the server chassis.
8. Reconnect the AC power and power up the server.

Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper will need to be used to reset the configuration RAM. The CMOS Clear jumper is shown in figure 6.

1. Power down the system and disconnect the AC power.
2. Open the server.
3. Move the jumper from the normal operation position, CMOS Clear by BMC, at pins 1 and 2 to the CMOS Clear Force Erase position, covering pins 2 and 3 as indicated in the following diagram.
4. Reconnect the AC power, power up the system.
5. When the system begins beeping, power it down and disconnect the AC power.
6. Return the CMOS Clear jumper to the CMOS Clear by BMC location, covering pins 1 and 2.
7. Close the server chassis.
8. Reconnect the AC power and power up the system.

6 Troubleshooting

This chapter helps you identify and solve problems that might occur while you are using the system.

LED Information

The MAXDATA PLATINUM Server Board includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

Table 6. LED Information

LED Name	Function	Location	LED Color	Notes
Power	Indicates system power is on or off	Front control panel	Green	Off = Power is off or in sleep state S5 On = Power is on or in sleep stats S0
ID	Aid in server identification from the back panel	Front control panel and board rear left corner	Blue	Press ID LED button or use Server Management software to turn the LED on and off.
System Status	Visible fault warning	Control panel and board rear left corner	Green or Amber	Green = No Fault Green blinking = degraded condition Amber blinking = non-critical error Amber = critical or nonrecoverable error

BIOS POST Beep Codes

The table below lists the POST error beep codes. Prior to system video initialization, the BIOS uses these beep codes to inform users of error conditions. Please note that not all error conditions are supported by BIOS beep codes.

Table 7. POST Error Beep Codes

Number of Beeps	Reason for the beeps and action to take
1, 2, or 3	Memory error. Reseat the memory or replace the DIMMs with known good modules.
4 – 7 or 9 – 11	Fatal error indicating a possible serious system problem. Remove all add-in cards and re-start the system. If the error still occurs, contact your system manufacturer. If the beep codes are not generated after the add-in cards are removed, insert the cards one at a time, booting the system between each card addition, until the beeps again occur to reveal the malfunctioning card.
8	Replace or reseat the system video add-in card. If on-board video is bing used, the server board may be faulty.

In addition to the beep codes above, additional beep codes are provided if an Remote Management Module is installed. The Remote Management Modules provide the following additional beep codes.

Table 8. Error Beep Codes Provided by Remote Management Modules

Beep Code	Reason for the beeps and action to take
1	Control panel CMOS clear has been initiated.
1-5-1-1	Processor failure. Reseat or replace the failed processor.
1-5-2-1	No processor is installed or the CPU 1 socket is empty. Reseat or replace the failed processor.
1-5-2-3	Processor configuration error or CPU 1 socket is empty. Reseat or replace the failed processor. In a two-processor system, make sure the processors are identical.
1-5-2-4	Front-side bus select configuration error.
1-5-4-2	DC power unexpectedly lost.
1-5-4-3	Chipset control failure.
1-5-4-4	Power control failure.

7 Technical Reference

Power Supply Specifications

600 W Single Power Supply Input Voltages

- 100-127 V at 50/60 Hz; 8.55 A max.
- 200-240 V at 50/60 Hz; 4.3 A max.

600 W Single Power Supply Output Voltages

The table below lists the total wattage available from the power subsystem for each voltage. Ensure that your loads do not exceed the combined total wattage of 600 Watts.

Table 9. Power Supply Output Capability

Voltage	Maximum Current
+3.3 V	15 A
+5.0 V	30 A
+5 V Standby	3 A
+12.0 V (4 rails)	44 A (20 A for one rail)
–12.0 V	2.0 A

CAUTION

Do not exceed a combined power output of 90 Watts for the +5 V and +3.3 V outputs. Exceeding a combined 90 Watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

The expansion slots on the server board are rated for no more than 25 Watts for any one slot. The average current usage per slot should not exceed 13 Watts.

System Environmental Specifications

Table 10. Environmental Specifications

Temperature	Non-operating	–40 °C to 70 °C.
	Operating	10 °C to 30 °C; derated 0.5 °C for every 1000 ft (305 m) to a maximum of 10,000 ft.
Humidity	Non-operating	90 % relative humidity (non-condensing) at 30 °C.
Acoustic noise		7 Bels in sound power for a typical office ambient temperature (18–24 °C). **The selection of peripherals may change the noise level.**

8 Regulatory and Integration Information

Product Regulatory Compliance

Product Safety Compliance

The server complies with the following safety requirements:

- EN 60950 (European Union)
- IEC 60950 (International)
- CE – Low Voltage Directive (73/23/EEC) (European Union)

Product EMC Compliance

The server has been tested and verified to comply with the following electromagnetical compatibility (EMC) regulations:

- EN 55022 (Class A) – Radiated & Conducted Emissions (European Union)
- EN 55024 (Immunity) (European Union)
- CE – EMC Directive (89/336/EEC) (European Union)

Product Regulatory Compliance Markings

This product is marked with the following Product Certification Markings:

Table 11. Product Certification Markings

CE Mark	

Product RoHS Compliance

Restriction of Hazardous Substances: This server system is compliant to European Directive 2002/95/EC (RoHS).

Installation Precautions

Observe all warnings and cautions in the installation instructions.

To avoid injury, be careful of:

- Sharp pins on connectors
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (like processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

Refer computer servicing to qualified technical personnel.

Use Only for Intended Applications

This server board was evaluated as Information Technology Equipment (I.T.E.) for use in computers that will be installed in offices, homes, schools, computer rooms, and similar locations. The suitability of this product for other applications or environments, (such as medical, industrial, alarm systems, test equipment, etc.) may require further evaluation.

Power and Electrical Warnings

CAUTION

The power supply in this product contains no user-serviceable parts. Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Return to manufacturer for servicing.

When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing it from the server.

To avoid risk of electric shock, turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it.

The power supply cord(s) is/are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.

The power supply cord(s) must be plugged into socket-outlet(s) that is/are provided with a suitable earth ground.

Rack Mount Warnings

The equipment rack must be anchored to an unmovable support to prevent it from tipping when a server or piece of equipment is extended from it. The equipment rack must be installed according to the rack manufacturer's instructions.

Install equipment in the rack from the bottom up, with the heaviest equipment at the bottom of the rack.

Extend only one piece of equipment from the rack at a time.

You are responsible for installing a main power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the server(s).

To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed in it.